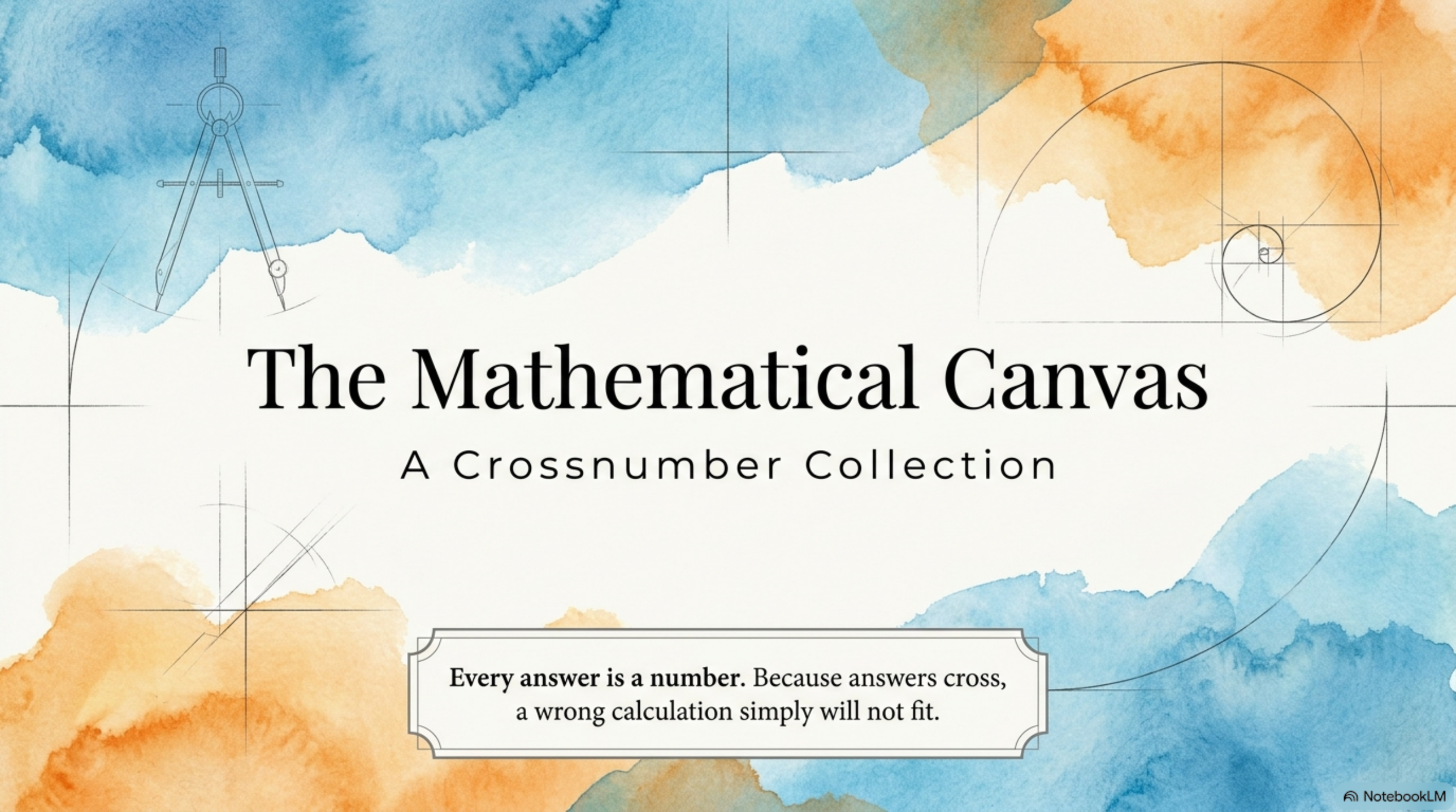
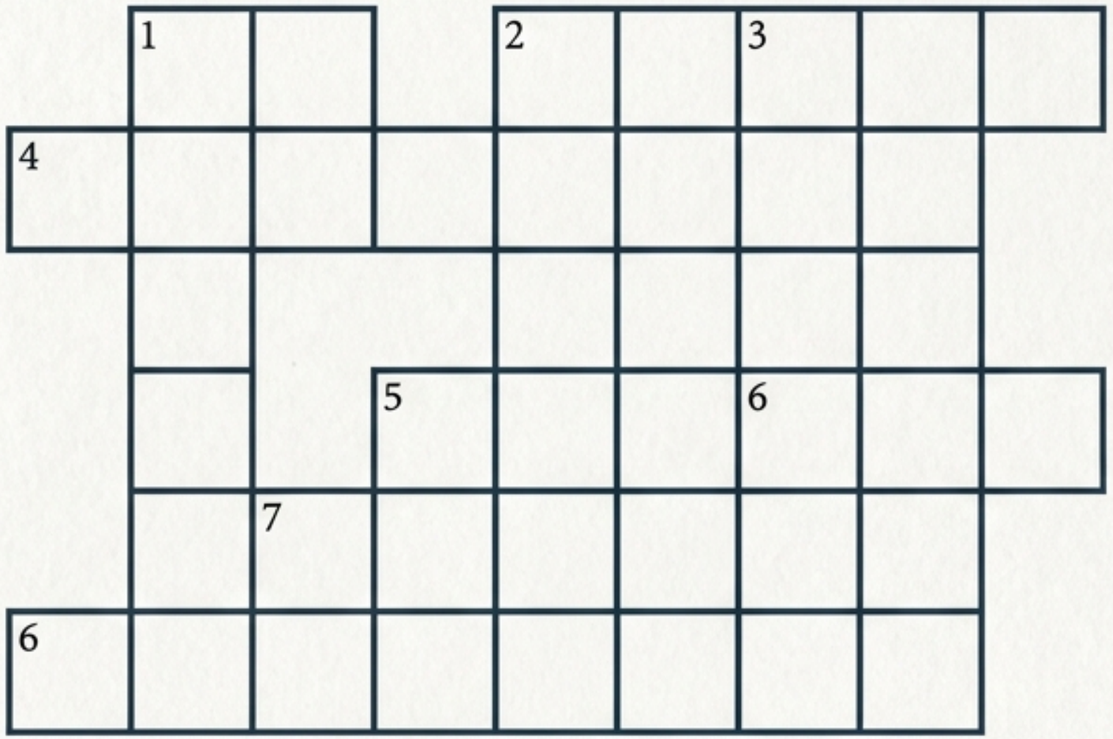


# The Mathematical Canvas

## A Crossnumber Collection

**Every answer is a number.** Because answers cross, a wrong calculation simply will not fit.

NotebookLM




# Chapter 1 · Number Systems

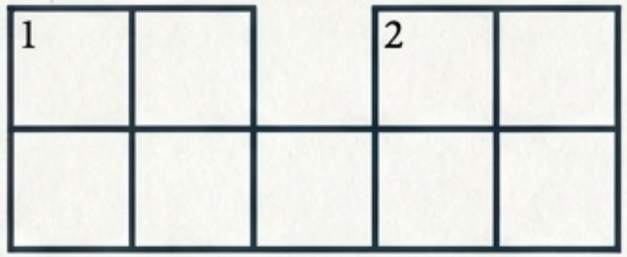
ACROSS

1. A number to be expressed as a product of prime factors (Ex. 1.1, Q1(iii)) (4 digits)
4. HCF(6, 72, 120) (1 digits)
5. A number to be expressed as a product of prime factors (Ex. 1.1, Q1(ii)) (3 digits)
7. HCF(96, 404) (1 digits)

DOWN

1. LCM(6, 72, 120) (3 digits)
2. HCF(6, 20) (1 digits)
3. A number to be expressed as a product of prime factors (Ex. 1.1, Q1(iv)) (4 digits)
5. A number to be expressed as a product of prime factors (Ex. 1.1, Q1(i)) (3 digits)
6. LCM(6, 20) by the prime factorisation method (2 digits)

NotebookLM




# Chapter 2 · Polynomials

ACROSS

1. Constant term of $x^2 + 7x + 10$ (2 digits)

DOWN

1. Degree of a linear polynomial (1 digits)
2. $p(x) = x^2 - 3x - 4$, evaluate $p(4)$ (a zero, so this is the answer) (1 digits)

NotebookLM

# Chapter 3 · Pair of Linear Equations in Two Variables

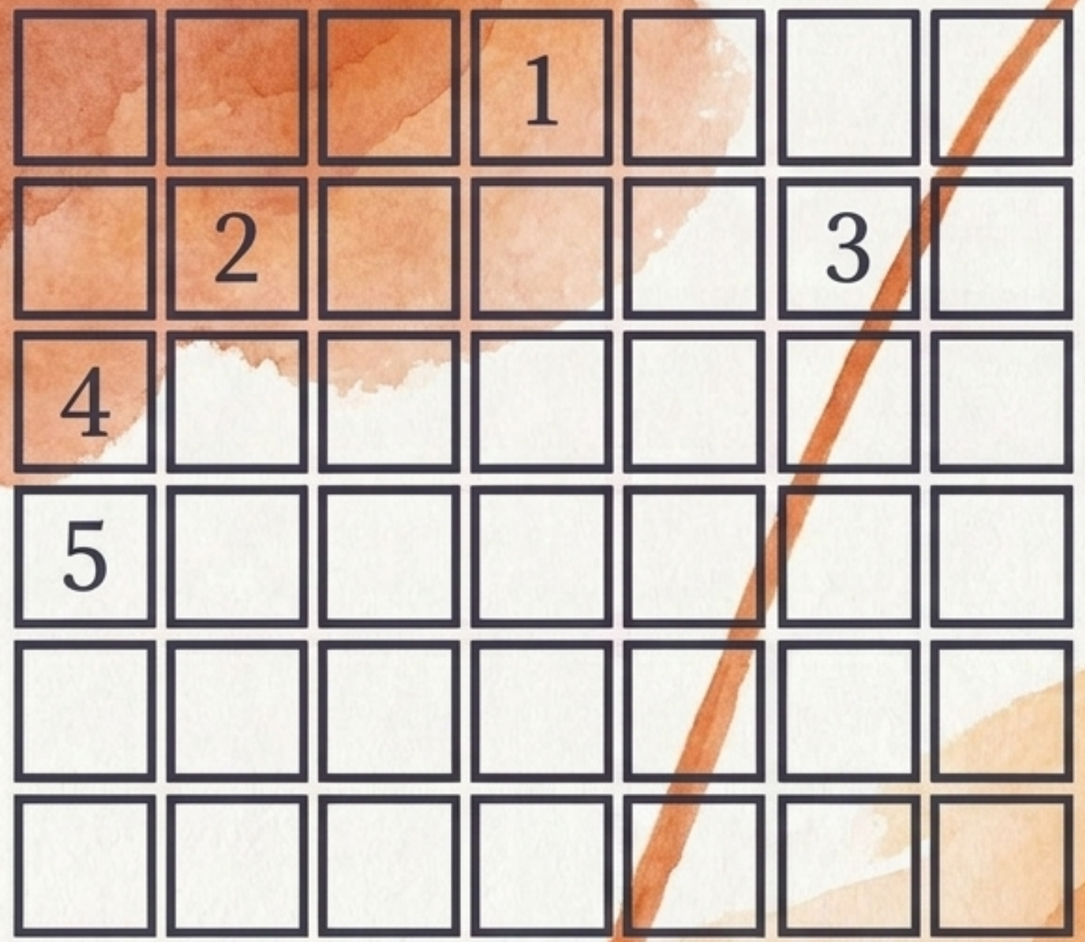
## ACROSS

2. Monthly income of the first person, ratio 9:7 (Example 8) (5 digits)
3. The smaller two-digit number in the digit-reversal puzzle (Example 10) (2 digits)

## DOWN

1. Monthly saving of each person (Example 8) (4 digits)
2. Monthly income of the second person, ratio 9:7 (Example 8) (5 digits)

NotebookLM




# Chapter 4 · Quadratic Equations

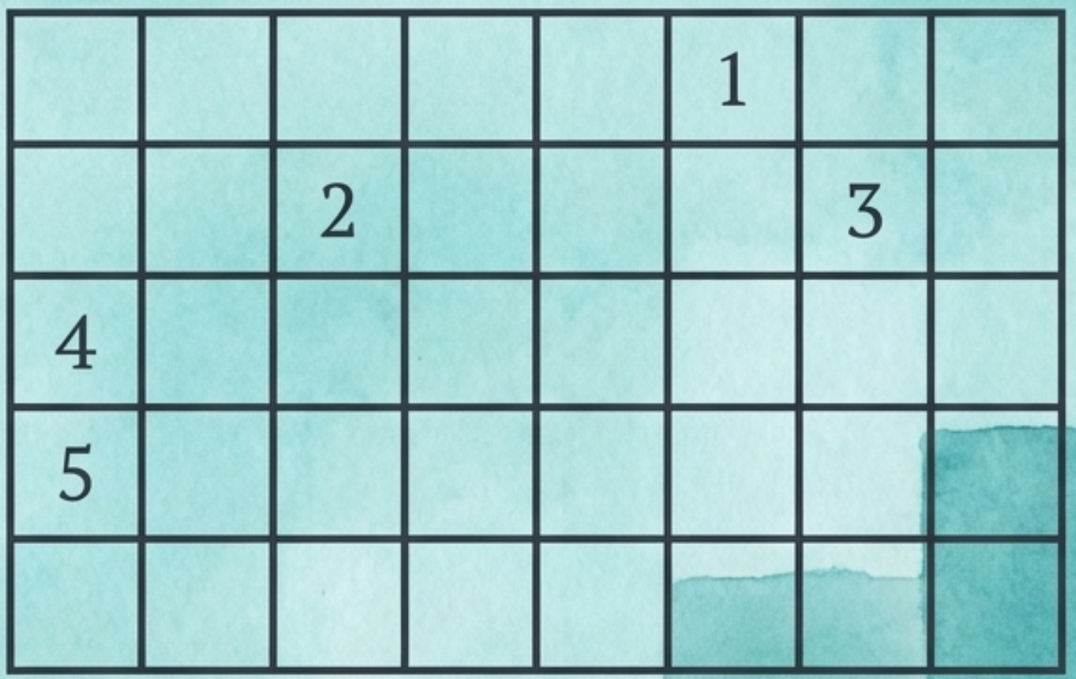
## ACROSS

2. Carpet area, in $m^2$, of the prayer hall in Section 4.1 (3 digits)
4. $4^2$ — the square used when computing discriminants with $b = 4$ (2 digits)
5. Value of $a$ in the equation $2x^2 + x - 300 = 0$ (1 digits)

## DOWN

1. The positive constant term in $x^2 + 7x - 60 = 0$ (2 digits)
2. One value of $324 \div 9$ (2 digits)
3. Discriminant value that gives two equal real roots (1 digits)
4. Distance (m) of the pole from gate A (2 digits)

NotebookLM



# Chapter 5 · Arithmetic Progressions

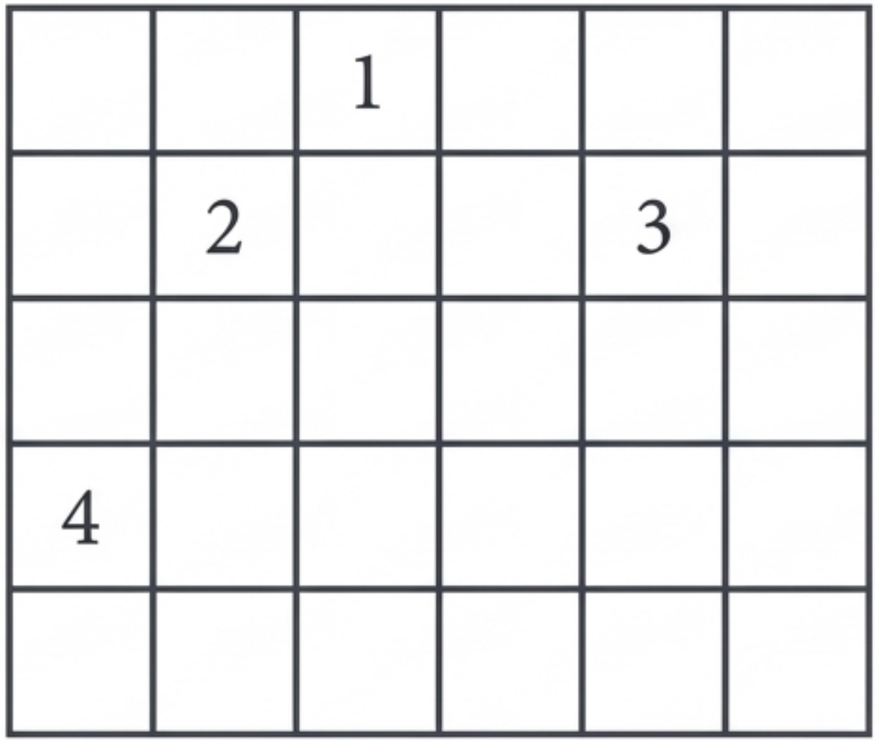
**ACROSS**

3. nth term formula gives $a_{10}$ for a=0, d=10: value of $a_{10}$ (2 digits)
5. Sum of the first 1000 positive integers (6 digits)

**DOWN**

1. Number of rows of rose plants: 23 in the first row, 21 in the next, down to 5 in the last row (2 digits)
2. Interest, in rupees, at the end of 30 years on ₹1000 at 8% simple interest per year, using the AP shortcut (4 digits)
3. Sum of the first 15 multiples of 8 (3 digits)
4. Which term of 21, 18, 15, ... equals −81 (2 digits)

NotebookLM



# Chapter 6 · Triangles

ACROSS

2. $\angle BOC$ given in Exercise 6.3, Q.2, in degrees (3 digits)
4. The measure of $\angle P$ found using the angle sum property in Example 5, in degrees (2 digits)

DOWN

1. The height (in metres) of the tower in Exercise 6.3, Q.15 (2 digits)
2. The angle sum property of a triangle: the three angles always add to this many degrees (3 digits)
3. $\angle DOC$ found from the linear pair with $\angle BOC = 125°$, in degrees (2 digits)
4. Ten times $BD$ in metres, Example 7 ($BD = 4.8$ m) (2 digits)

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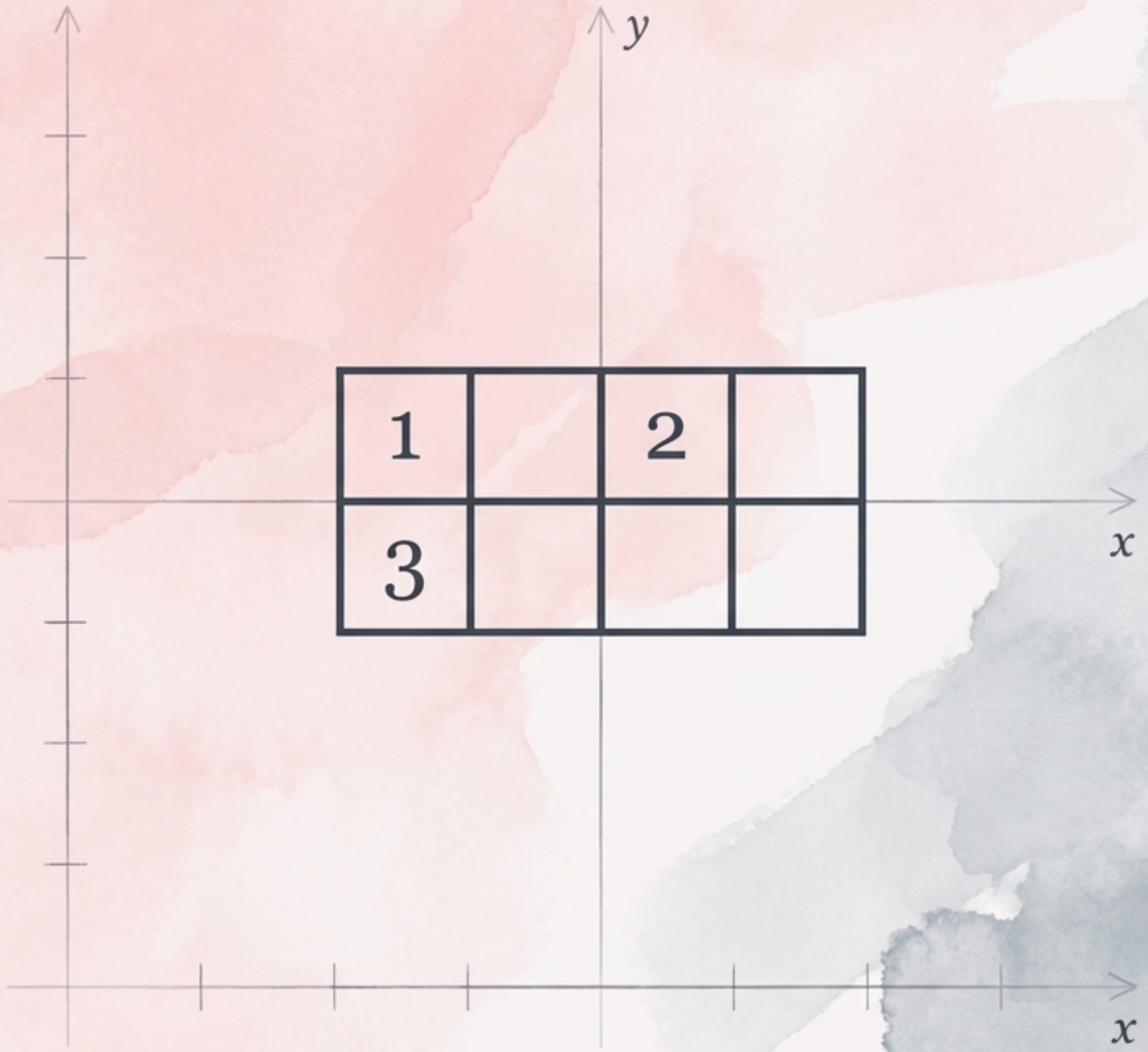



# Chapter 7 · Coordinate Geometry

ACROSS

1. x-coordinate of the relay tower P, dividing AB in the ratio 1 : 2 (Section 7.2) (2 digits)
3. y-coordinate of the same relay tower P (1 digits)

DOWN

1. Number of km town B is north of town A (2 digits)
2. m1, the first term of the ratio 2 : 7 found in Example 7 (1 digits)

NotebookLM

# Chapter 10 · Circles

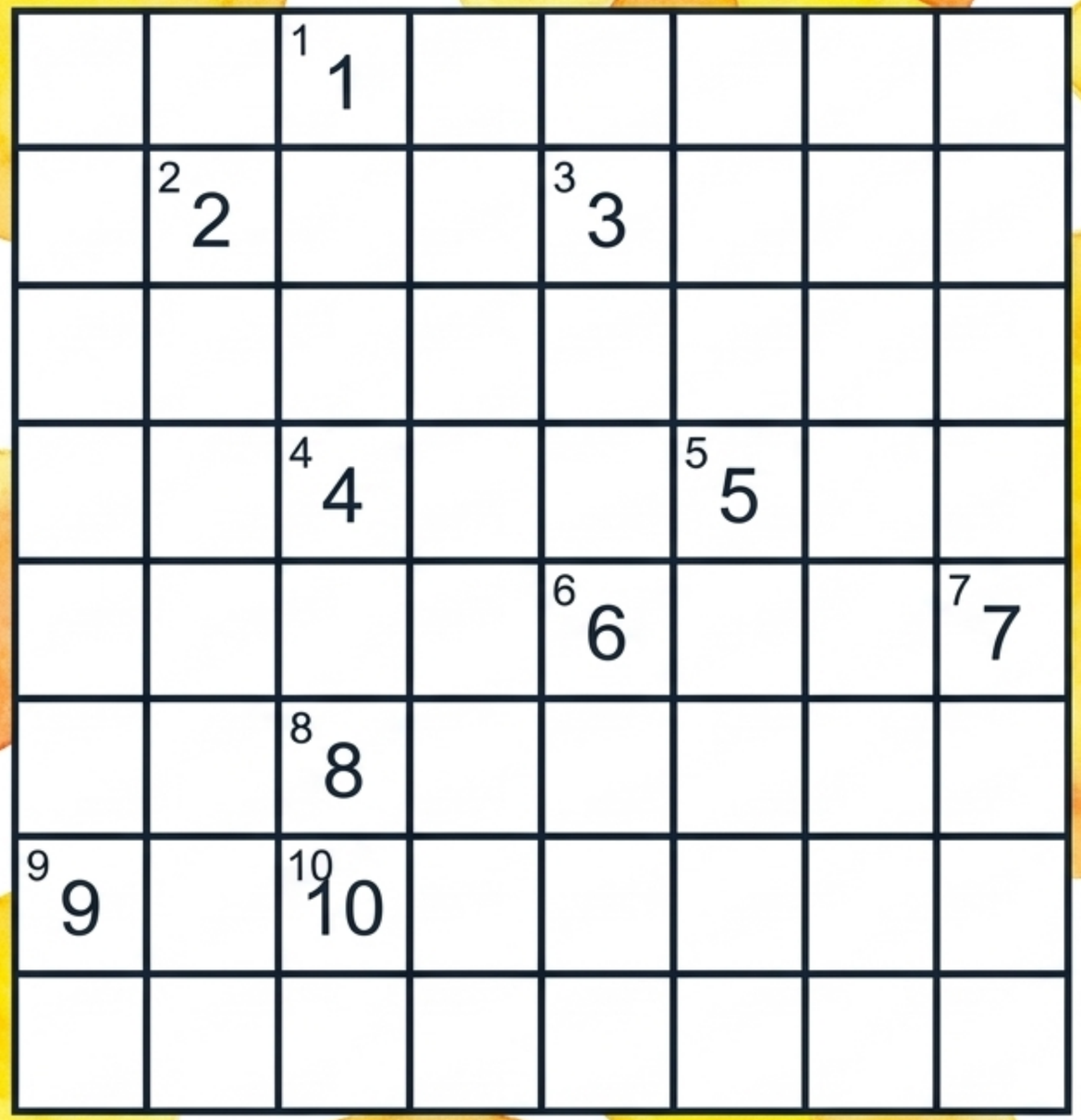
ACROSS

1. $12^2 - 5^2$ (Ex. 10.1 Q3: OQ=12, radius=5, $PQ^2$) (3 digits)
4. Radius when tangent from A (5 cm away) is 4 cm (1 digits)

DOWN

2. Hypotenuse of the classic 5–12–13 right triangle (2 digits)
3. $OA^2$ - $OP^2$ when OA=5, OP=4 (i.e. $5^2 - 4^2$) (1 digits)

16:9
NotebookLM



# Chapter 11 · Areas Related to Circles

**ACROSS**

2. Area (cm²) of a quadrant of a circle of radius 14 cm, using π = 22/7 (3 digits)
4. Area (cm², ×100) of a circle of radius 20 cm, using π = 3.14 (4 digits)
6. Circumference (cm) of a circle of radius 21 cm, using π = 22/7 (3 digits)
8. Circumference (cm) of a circle of radius 14 cm, using π = 22/7 (2 digits)
9. Circumference (cm) of a circle of diameter 110 cm, using π = 22/7 (nearest whole) (3 digits)

**DOWN**

1. Radius (cm) squared for radius 5 cm (2 digits)
3. Area (cm²) of a sector of radius 21 cm and angle 120°, using π = 22/7 (3 digits)
4. Area (cm²) of a circle of radius 21 cm, using π = 22/7 (4 digits)
5. Area (cm²) of a circle of radius 14 cm, using π = 22/7 (3 digits)
7. Area (cm²) of a sector of radius 21 cm and angle 60°, using π = 22/7 (3 digits)
10. Circumference (cm) of a circle of radius 7 cm, using π = 22/7 (2 digits)

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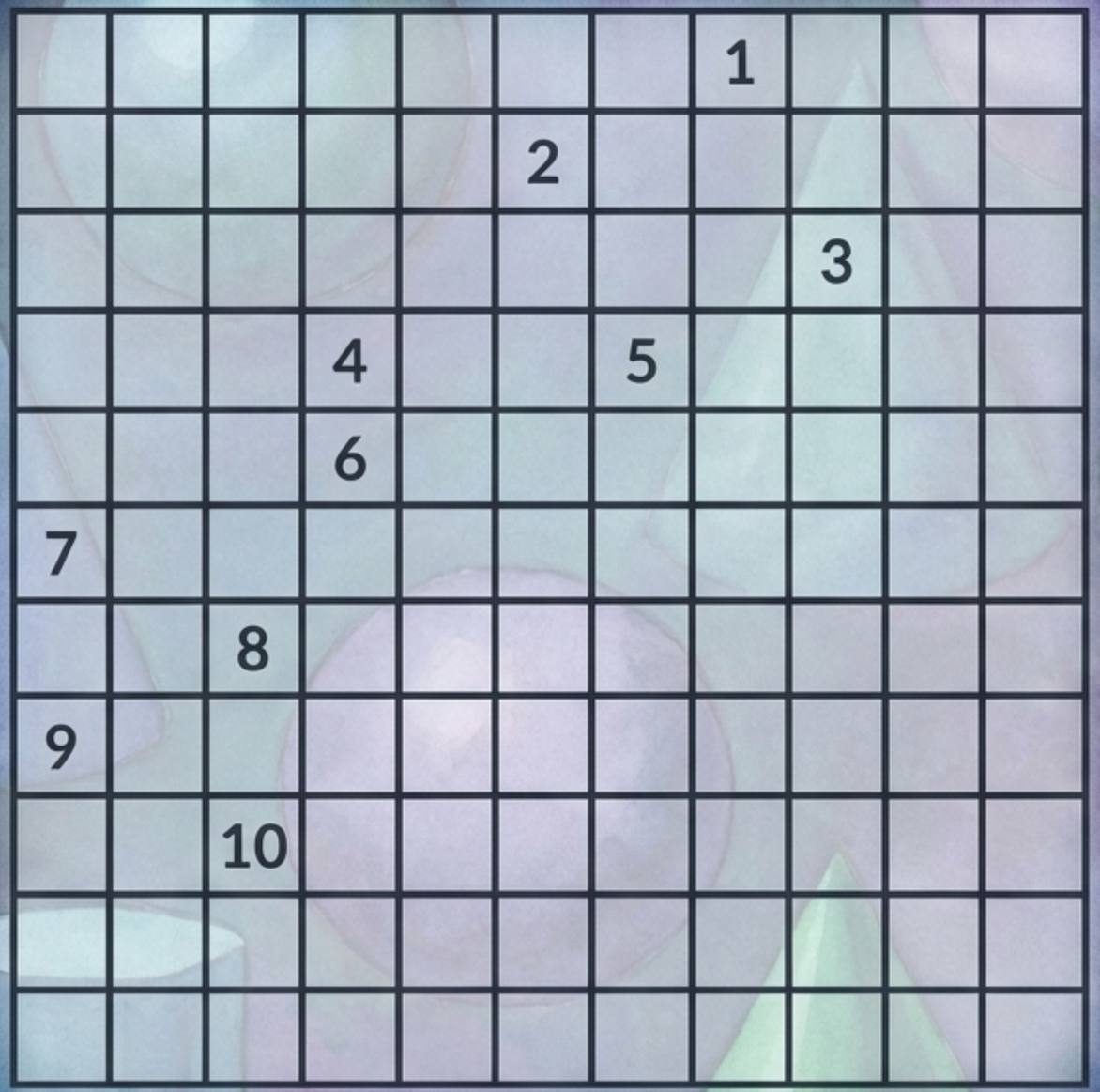

# Chapter 12 · Surface Areas and Volumes

**ACROSS**

3. TSA of a cube of edge 7 cm, in $cm^2$ (3 digits)
5. TSA of a cube of edge 5 cm, in $cm^2$ (3 digits)
6. CSA of a cylinder, $r$=7 cm, $h$=12 cm, in $cm^2$ ($\pi$=22/7) (3 digits)
8. TSA of a hemisphere of radius 7 cm, in $cm^2$ ($\pi$=22/7) (4 digits)
9. CSA of a cone, $r$=7 cm, $l$=21 cm, in $cm^2$ ($\pi$=22/7) (3 digits)
10. Volume of a cube of edge 7 cm, in $cm^3$ (3 digits)

**DOWN**

1. CSA of a cone, $r$=7 cm, $l$=10 cm, in $cm^2$ ($\pi$=22/7) (3 digits)
2. TSA of a cylinder, $r$=7 cm, $h$=9 cm, in $cm^2$ ($\pi$=22/7), to nearest whole number (3 digits)
4. Volume of a sphere of radius 7 cm, in $cm^3$, to nearest whole number ($\pi$=22/7) (4 digits)
7. CSA of a hemisphere of radius 7 cm, in $cm^2$ ($\pi$=22/7) (3 digits)
8. CSA of a sphere of radius 14 cm, minus 384, in $cm^2$ ($\pi$=22/7) (4 digits)

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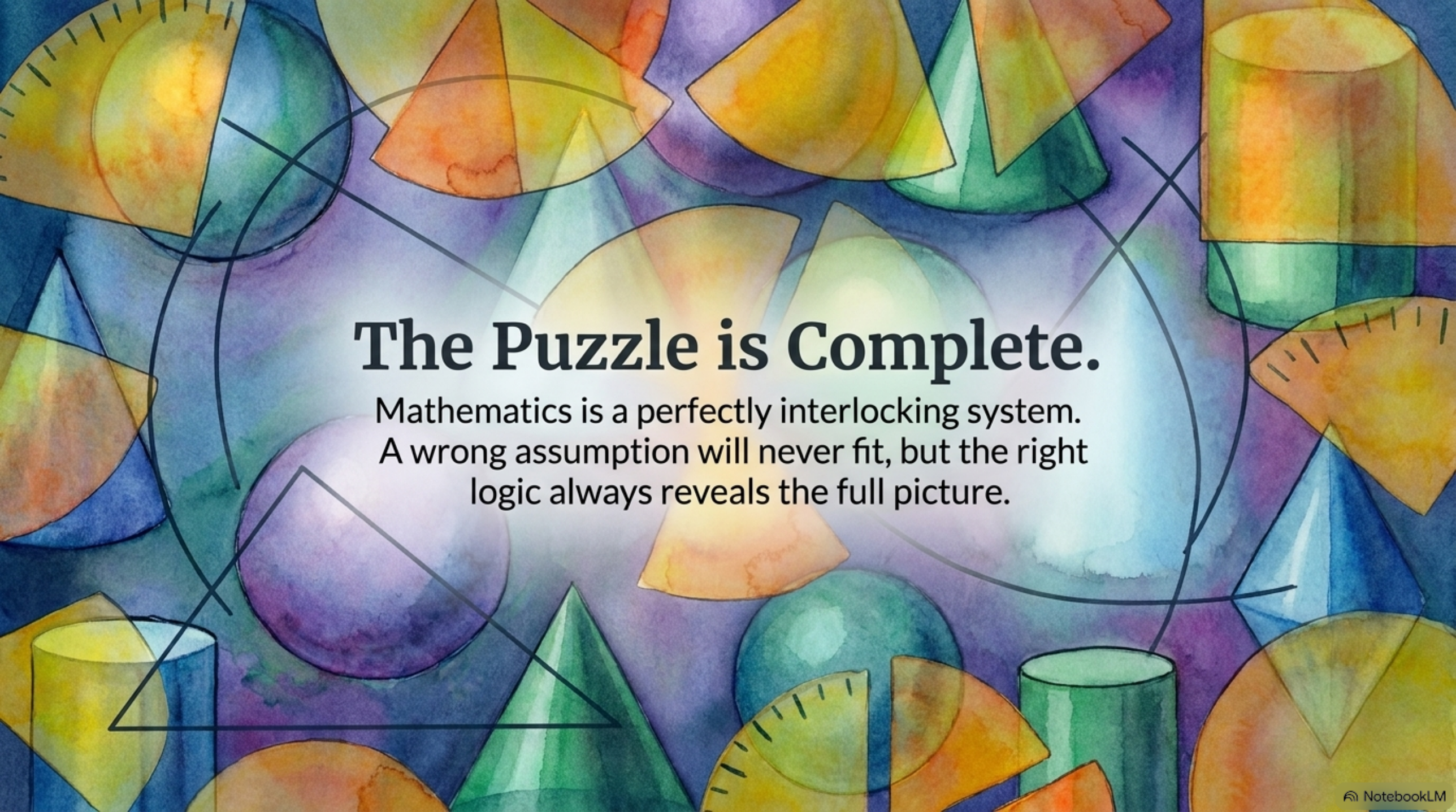
The Puzzle is Complete.
Mathematics is a perfectly interlocking system.
A wrong assumption will never fit, but the right
logic always reveals the full picture.
NotebookLM